

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
12 February 2004 (12.02.2004)

PCT

(10) International Publication Number  
**WO 2004/014111 A1**

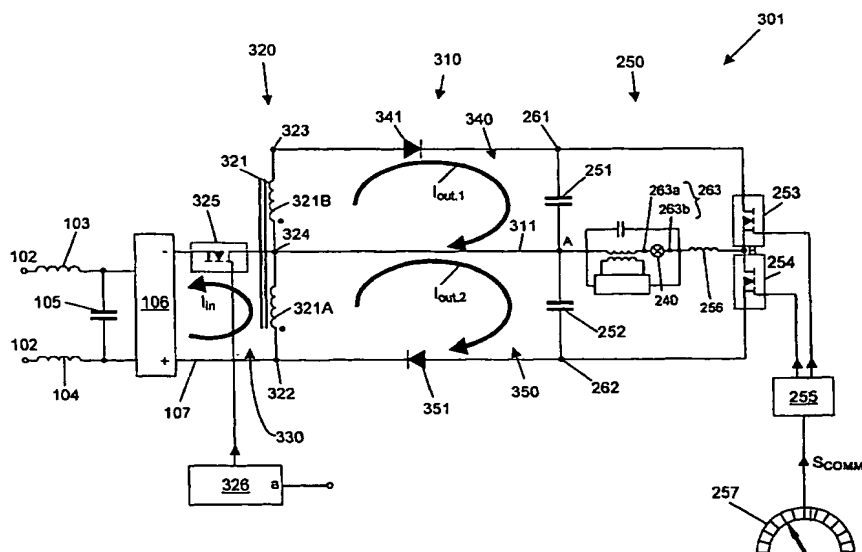
- (51) International Patent Classification<sup>7</sup>: **H05B 41/282**, H02M 3/155, 3/335
- (21) International Application Number: PCT/IB2003/003145
- (22) International Filing Date: 10 July 2003 (10.07.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 02078133.2 30 July 2002 (30.07.2002) EP
- (71) Applicant (for all designated States except US): **KONINKLIJKE PHILIPS ELECTRONICS N.V.** [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **VAN CASTEREN**, Dolf, H., J. [NL/NL]; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). **COUWENBERG**, Winston, D. [NL/NL]; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).
- (74) Agent: **BOSMA, Rudolphus, H., A.**; Internationaal Octrooibureau B.V., Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

## Declaration under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA,

[Continued on next page]

(54) Title: DRIVER FOR A GAS DISCHARGE LAMP



(57) Abstract: A two-stage electronic ballast (301; 401) for driving a gas discharge lamp comprises:- a half-bridge commutating forward (HBCF) stage (250) comprising a series arrangement of a first buffer capacitor (251) and a second buffer capacitor (252) connected between two bridge input terminals (261, 262);- and a double flyback converter stage (310; 410) comprising an inductive energy storage buffer (320; 420) having at least one input circuit (330) suitable for receiving a rectified AC mains input voltage, the buffer further having at least two output circuits (340, 350), each output circuit being coupled to a respective buffer capacitor (251, 252) of said half-bridge commutating forward (HBCF) stage (250) for individually charging said buffer capacitors (251, 252).